

CLAIMS

1. Machine for the continuous cabling/twisting and setting of yarns, comprising several treatment stations 5 incorporating, in combination and in succession, within the same work position:

- means (1) for twisting/cabling a yarn;
- heat-setting means consisting of a heated rotary godet (2) followed by an accumulator (3) capable 10 of cooling and relaxing the yarn in the completely free, tensionless state; and
- means (4) for winding on or winding up the yarn (5),
the said means being subjected to means for driving and 15 guiding the yarn.

2. Machine according to Claim 1, characterized in that, at the or each treatment station, the twisting/cabling means (1), heat-setting means (2) and 20 winding-on means (4) are mounted in combination with devices for forwarding the yarn and arrangements of the frame of the said machine, so as to delimit a small and compact space that incorporates the yarn wind-off means (6), along a yarn path of short length.

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3. Machine according to either of Claims 1 and 2, characterized in that the godet (2) has configurations capable of allowing the shrinkage of the yarn to be controlled.

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4. Machine according to Claim 3, characterized in that the configurations of the godet consist of a longitudinal profile defining successive zones that extend over almost the entire length of the said godet, 35 namely an initial crimp pick-up zone (2a), a residual shrinkage zone (2b) and a setting zone (2c).

5. Machine according to Claim 4, characterized in that
the initial crimp pick-up (2a) and residual shrinkage
(2b) zones consist of conical bearing surfaces, while
the setting zone (2c) consists of a cylindrical bearing
surface.
6. Machine according to Claim 5, characterized in
that the two conical bearing surfaces (2a) and (2b)
have different cone angles, the residual shrinkage zone
10 (2b) having a smaller angle than the initial crimp
pick-up zone (2a).
7. Machine according to Claim 3, characterized in
that the length of the setting zone (2c) is greater
15 than the sum of the lengths of the two other zones (2a)
and (2b).
8. Machine according to Claim 4, characterized in
that the initial crimp, residual shrinkage and setting
20 zones consist of a curved profile.
9. Machine according to Claim 2, characterized in
that the heated godet (2) is subjected to means capable
of allowing automatic reeving of the yarn.
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10. Machine according to Claim 2, characterized in
that the accumulator (3) consists of a hollow straight
body placed approximately vertically, the end of which,
considered on the output side, is frustoconical in
30 order to create, within the said body, a buffer zone
braking the output of the said yarn by preventing it
from leaving directly.
11. Machine according to Claim 10, characterized in
35 that, at the outlet of the accumulator (3), the yarn is

subjected to the action of bars (8) capable of uncurling the yarn and giving it the tension needed for winding-on.

- 5 12. Machine according to Claim 3, characterized in
that the accumulator (3) consists of a relaxation belt
in which the yarn forms a reserve, the said belt being
placed between the heat-setting godet (2) and the
wind-up means (4), the wind-up speed being regulated so
10 that the amount of accumulated yarn in reserve is
maintained between two predetermined values, a minimum
value and a maximum value.
- 15 13. Machine according to Claim 7 or 8, characterized
in that the yarn (5) is deposited in the accumulator
(3) through the effect of a relative movement between a
guiding element and the accumulator itself.
- 20 14. Machine according to Claim 13, characterized in
that the relative movement is created by a displacement
of the yarn guiding element.
- 25 15. Machine according to Claim 13, characterized in
that the relative movement is created by a displacement
of the accumulator itself.
- 30 16. Machine according to Claims 11 to 15,
characterized in that each treatment station comprises,
in succession starting from the wind-off bobbin:
- a yarn twisting and/or cabling spindle (1);
- a presser/deliverer member (7) limiting the
tension of the yarn and setting a level of twist
downstream;
- the heated rotary godet (2);
- the cooling accumulator (3);
- the uncurling bars (8); and
- the winding-on or wind-up bobbin (4)